

Teachers as ‘Powerless Elites’: Emotions and Transformative Learning—A Refined Profession in an Era of Digitalisation and Artificial Intelligence

Eunice Yin-Yung Chiu

Heidelberg University, Germany

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ABSTRACT

This research uses narrative analysis to examine the emotional experiences of five schoolteachers, teaching in five different schools in Hong Kong, Singapore, and Taiwan. The analysis shows the paradoxical perceptions about the (ir)replaceability of the teaching profession in the digital era. Findings include i. the strong mixed feelings experienced by teachers regarding the future of education that is embedded with digitalisation; ii. Meaning-making in teaching lies on the emotional engagement of teachers and quality teacher-student-relationship; iii. intense self-doubts on the roles of teachers in a virtual classroom were experienced in the beginning of the pandemic, but it has transformed into a refined roles upon critical self-reflection. This research investigates the emotionality of teachers in the virtual classroom, transformative learning has been the key to teachers’ refined roles despite society’s increasing reliance on artificial intelligence.

1. Introduction

Teaching is a process embedded with emotions; through examining teachers’ emotions in the context of online teaching, the paradox between societal expectations and teachers’ perceptions are revealed. The pandemic led to emergency remote teaching, and these helpless teachers are expected to be the leaders in moving forward online education. Teachers are powerless elites as they do not hold institutional power against the flow of the top-down policies. With the advancement of artificial intelligence, this research reveals that it has brought self-doubts and teaching anxiety to teachers. Emotions or the study of emotions is seen as a complicated process because emotions still lack a definitional perspective. However, the focus of this research is not on the generality of emotions but takes on the phenomenological argument. Emotions have a bi-social character: it is universal and at the same time, a product, and a process of culture (Beatty, 2014). The emotional experiences of the five informants are examined through narrative analysis, as those emotions are strictly confined to the context of online teaching for schoolteachers. The situatedness, relationality and contextuality of emotions are taken into account, and hence making the narratives of these individuals comparable (Spindler, 2011). The focus is on how digitalisation has affected the perceptions of these informants regarding

* Corresponding author E-mail address: yychiu.eunice@gmail.com

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teaching; perceptions in this study are regarded as the cause for certain emotions, and at the same time, the consequences of emotions (Chiu, 2021).

Transformative learning has been adapted as the theoretical framework to explain the transformation went through by these informants. Transformative learning theory is an adult learning theory, it is first coined by Jack Mezirow. It consists of two key aspects: habits of mind and points of view (Mezirow, 1989). According to the emotion-perception-cycle, emotionality is inseparable from transformative learning, in fact, emotions are the enabler of critical self-reflection, the bridge to transformative learning (Yung, 2022). Emotions interferes with the agent's value judgement and the perception of the event in-play. On one hand, schoolteachers are given the social role to nurture *good students*; emotional intelligence and emotional competence are deemed as prerequisites for professionalism, and teachers are expected to teach these to students as a tacit knowledge (Wulf, 2021). On the other hand, the covid-19 pandemic has been a game-changer, amplifying the structural problems rooted in the above-mentioned value. As ERT has been implemented regardless of many teachers' limited experience and knowledge with online teaching, in the beginning of ERT, these teachers faced serious self-doubts and burnout. On top of practical challenges such as technical and technological issues, they also had to endure pressure from the school management, parents, and the learning of students, causing emotional distress. These teachers are 'powerless elites', their "institutional power was limited or non-existent while their doings attracted a maximum degree of public interest" (Alberoni, 2007). Regardless of their opinion on online education, teachers are expected to be the frontiers in maintaining the learning of students; when facing top-down policy, they have no institutional power nor decision power, but to be the street bureaucrats in carrying out those measures. Teachers answer to "the public", which refers to parents, policymakers, school leaders and the mass media; they are expected to carry out their expected role--- sustaining learning; but they are also expected to be more than knowledge imparters. The paradox has led to emotional turmoil amongst teachers, it seems to say that the pandemic has juxtapositioned teachers as powerless elites.

In our ever-changing world, education has moved forward, inspired by the pandemic, digitalisation is believed to be the future of education. Many schools and institutions across the globe have fully shifted to distance learning. While current teachers struggle with online teaching pedagogy, the macro environment has not given sufficient time for them to fill in the knowledge gap. As novice teachers are also untrained for online pedagogies, the teaching field is forced to face unprecedented challenges. As a matter of fact, the shift from in-person classroom to virtual classroom also alters teacher-student relationships; together with the emergence of AI and accessibility of learning materials online, it caused many teachers to doubt their roles in the classroom. This research has found that transformative learning has occurred owing to the richness of emotionality amongst teachers.

Having that said, teaching profession is always filled with changes, in the past decades, a few fundamental changes have also occurred in the classroom. For instance, from teachers-centred classrooms to students-centred classrooms; the addition of STEM classes that emphasised the role of teachers as mere facilitator to students' learning (Keiler, 2018). However, the shift to virtuality and the use and/or incorporation of artificial intelligence into a real classroom is a change different from those that have occurred before. First, it is happening globally and does not seem to have a pause in its speed; second, it is a phenomenon that directly challenges and even threatens the necessity of teachers. In fact, a number of research (Roehrig & Kruse, 2005; Kawalkar & Vijapurkar, 2013; Kaymakamoglu, 2018) has also shown that the sudden shift to online teaching have induced heavy doubts amongst teachers regarding their identities (how teachers think of themselves in the classroom and their roles in the classroom (Keiler, 2018));

for instance, the lack of observable body language in virtual classrooms has found to caused teaching anxiety in teachers.

In face of such circumstances, this research sees the urgency and essentiality in examining teachers' perceptions. To achieve a fuller account of how teachers orient themselves in the digital era, it is believed that emotions should be the focus of the analysis; as emotions are not 'inside' people, but are interwoven between the mind and the body, and most importantly, plays a critical role in affecting one's perception (Beatty 2014; Wulf 2002; Plumb, 2006). Adult learning theory is also used in this interdisciplinary research, as Mezirow's transformative learning cycle touches upon the importance of critical self-reflection--- the essential step before achieving transformation and reintegration (Kitchenham, 2008). The theory suggests that in face of critical disjuncture, individuals experience disorienting dilemmas, then enter the stage of self-reflection, and then reaches critical self-reflection, and finally reaching transformation in their habits of mind and frames of reference. Afterwards, individuals experiment with their new role and continue to finetune their habits of minds, until they achieve reintegration (Mezirow 1989; Illeris, 2018). This research particularly looks into the close connection between self-reflection and critical self-reflection, it reveals that emotions play an indispensable role in between. The intense and intensified emotions experienced by teachers formulate the strong base of critical self-reflection. It is through a reflexive and reflective process that teachers have familiarised with and refined their roles in the virtual classroom. There is no doubt that the pandemic has paved the start of digitalisation of education; reliance on artificial intelligence such as ChatGPT is still gradually rising. It is certain that more drastic changes in the teaching profession will be unfolded; this research therefore allows us to predict the likely coping mechanisms and behaviours of teachers as we march into the AI era. Teaching has always been a complicated profession, but the digital era has even altered the definition of a classroom and challenged the point of having a teacher. However, the key question that every educator must ask themselves is what qualifies as *a good teacher*--- what is expected of teaching individuals in a digital era and what are the irreplaceable and humanistic values embedded in teaching that should be emphasised even more in coming future.

2. Literature Review

2.1. Transformative Learning and the Role of Emotions

Transformative learning theory is a learning theory about adult learning coined by Jack Mezirow. It is briefly defined as the occurrence of a moment of disorientation which then results in transformative self-reflection— and the transformed perspective is then reintegrated into the present and future of the actor (Illeris, 2018). In fact, transformative learning is a complicated and multifaceted process, not only does it involve the higher order thinking—both reflective and reflexive thinking of the individual, but it also requires a deep structural shift in the person's thoughts, feelings, and actions (Kitchenham, 2008). Transformative learning theory emphasises critical reflection, the role of dialogue and communication with oneself and others, in interpreting the events occurred in the outside world, or in other words, the centrality of experience— emotions and/or emotionality is central to the transformation itself, as it is the enabler of critical self-reflection (*ibis*). Nevertheless, transformative learning theory does not require the presence of an active educator for it to take place: teachers themselves can experience transformative learning in the process of being educators to their students, provided that there is thorough critical reflection, engagement in discourse, and a transformed frame of reference/ habits of mind as a result of *reflective, reflexive* and *critical actions* (Marsick & Mezirow, 2002; Calleja, 2014; Illeris, 2018). The transformation that takes place begins with a change in perspective, and its effect extends to one's frame of reference and/or meaning

structures, and thereby resulting in changes that are evidenced in one's actions and behaviours (Calleja, 2014). Mezirow's work follows the school of thoughts of several significant scholars in the field of educational studies, one of which is Habermas. Habermas identifies three processes in which one's *lifeworld* can be reproduced: cultural reproduction, social integration, and socialisation. In Mezirow's framework, lifeworld equals meaning perspectives and the interpretation of events (Mezirow, 1989). Habermas, on the other hand, pinpoints four forms of discourse that are essential to the communicative nature of the process of learning. Therapeutic discourse centres around feelings or intent, which pertain to a person's subjectivity and can be altered and challenged for its authenticity through acts of communication (Calleja, 2014).

Disorienting dilemma, according to Mezirow, is triggered by a life crisis or a major transition that challenges individuals to question the henceforth invisible assumptions that one formerly holds to the world--- the process of acknowledging, processing, accepting and reacting to such an event is itself a process embedded with emotional complexities; it extends beyond a single moment of a single emotion (Illeris, 2018). The ten phases of transformative learning have not put into account emotionality of the individual when transformative learning is taking place. However, many researchers have shown that emotions affect perception. Emotions are results of culture, the type of emotions that is considered socially acceptable to have under different circumstances are a product of culture, and at the same time, since emotions are also universal and transcends languages, it is also a human quality that varies from individual to individual (Spindler, 2011). In the ten phases of transformative learning theory, each by occurs on a personal, in-depth level, it relies heavily on one's critical self-reflection and is usually more likely to occur when one possesses better socio-emotional skills (Calleja, 2014). Critical self-reflection can be found traces in content reflection, process reflection and premise reflection. The first two types are straightforward transformation, resulting from alterations in one's actions upon considering the factors and origins of actions taken in the past; the third type is profound and is achieved only through consideration of the bigger picture (Mezirow, 1989; Kitchenham, 2008). To foster transformative learning, communication is crucial as it allows individuals to identify the problematic ideas, values, and most importantly, feelings in which certain assumptions are based; and once those sentiments/feelings/ emotions are shared and empathised with those belonging in the same social group, those emotions become intensified, and is construal to deeper reflexive thinking. (Taylor, 2000; Wulf, 2002). In other words, learners' emotionality and emotional experiences formulate the indispensable basis of critical self-reflection, therefore are also the enabler of the integration of one's learning from experience. By contrast, Taylor (2000) described the avoidance and unwillingness to respond to certain feelings in an individual as a barrier that ceases one from learning and transforming; whereas the processing of feelings and emotions are described as therapeutic, enabling, and facilitates personal development (p.16). The role of emotions is non-negligible, it is a human quality that must not be overlooked, especially in the process of transformative learning.

2.2. Emergency Remote Teaching, Remote Teaching Anxiety & Digitalisation of Education

Emergency remote teaching refers to the 'temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances' (Moore & Hodges, 2023). ERT describes remote instruction that is not as intentionally planned nor well-designed, but as provision of a temporary solution. The covid-19 pandemic has forced education systems across the globe to conduct school suspension, ERT was used across educational contexts to keep the learning of students possible. This type of online learning calls upon a range of different modalities, and online learning with the use of online systems and resources is one of the modalities, but not

the only one. Another characteristic of ERT is that it is developed rapidly and instantly as a response to crisis, therefore, educators might not have necessarily received former training regarding online pedagogy, on top of that, both educators and students might also encounter other technical and technological challenges. The construct of ERT centres around the ideology of education in face of emergencies, despite the crisis, since education is a human right and a right of every child, the premise justifies the importance of the continuation and delivery of education during the pandemic (ibis). Since ERT is developed specifically during a crisis to cope with it, it is noteworthy that ERT is different from online learning/ online teaching.

During ERT, many in-service teachers have experienced remote teaching anxiety. The rapid shift of education modality has also brought multiple challenges to teachers, as they are situated in a virtual teaching space, the required skills and pedagogical knowledge are very different from the ones required in a traditional classroom (Akbana & Dikilitaş, 2022; Sadiç & Bavlı, 2023). In fact, online teachers are expected to be ‘autonomous, creative, digitally literate, evaluative and good at monitoring the whole learning process and knowing how to situate learning authentically in their own classroom’ (p.159). As pointed out by Taguchi (2020), digital spaces/ learning spaces in online teaching/learning has three pragmatics of digitalisation: structured, semi-structured and unstructured, and each digital space requires a separate set of skills in educators. Since learning space has altered during ERT, teachers’ priorities in classroom management have also changed to adapt to the new type of teacher-student relation within this modality. However, not only do teachers are now forced to face technostress in the process of adopting technology-facilitated classroom activities and pedagogies that they are not familiar with; they also have to rapidly cope with the distress caused by covid-19 pandemic itself— fear, loneliness, resilience, resistance to change... etc. (Akbana & Dikilitaş, 2022). Considering these factors, many teachers feel dissatisfied and anxious during ERT, some even felt disappointed and reluctant in teaching online as they equate it with merely dealing with a machine. Indeed, research has also pointed out that the teachers in the study do not feel comfortable teaching as they feel incapable of creating sufficient student enthusiasm due to their incompetencies in teaching online (Driscoll et al., 2012; Hubalovsky et al., 2019; Ross & DiSalvo, 2020; Akbana & Dikilitaş, 2022).

Another main source of anxiety comes from the assessment of students' learning. Since learning space has been shifted to a virtual space, affective and cognitive competences in terms of in-person interactions between teachers and students, as well as the observable body language are no longer possible; this has led many teachers to feel uncertain about the effectiveness of their delivery of content knowledge in class (Taguchi, 2020; Akbana & Dikilitaş, 2022). Another dominating factor which causes teachers’ remote teaching anxiety is students’ use of online resources and in some cases, the sole reliance of accessible online resources when working on assignments from school (Ross & DiSalvo; Russell, 2020; Choi et al., 2021). Although the pandemic has passed, digitalisation of education is still ongoing and has even become more widely used than before. A hybrid learning space is encouraged across educational contexts, in which both virtual and real spaces are used alternately in the process of teaching and learning (Trentin, 2016; Stewart, 2021). As teachers just became more experienced with online teaching after ERT, the emergence of artificial intelligence such as ChatGPT has certainly created more potential problems for teachers (Isaken, 2021; García-Peñalvo; AbuMusab, 2023). The appearance of artificial intelligence certainly influences education itself, and most importantly, the role of educators. For instance, even if the use of ChatGPT is banned in certain educational contexts, for the fear that students might generate essays or classwork there, now, such usage is still traceable owing to the errors in reasoning and grammar that are demonstrated by it (García-Peñalvo, 2023). The role of teachers in the digital age have changed yet again— they are expected to take on the roles as agents of change and learning consultants, whose sole

responsibilities are to motivate students in accessing learning resources that are readily available in the Internet, and then revolutionised learning processes and outcomes, such as ‘vision, responsibility, social sensitivity, logical ability and teacher honesty’ (Fitria and Suminah, 2020, p.70). Petersen and Batchelor (2019) argued that teachers will not be replaced, since their major role is to facilitate students in learning how to operate in an increasingly complex world and extends beyond the delivery of content knowledge.

2.3. Changes in Teachers’ Identities in Transitioning to Students-Centred Classroom

Learning to teach and teaching per se, is itself a process of identity construction. As teachers change their teaching practice and negotiate their identities and beliefs throughout the process, they are also constructing their own professional identity and personal identity (Lave & Wenger, 1991). When the concept of students-centred classrooms first emerged, teachers had to alter their previous pedagogies and modify their mindsets regarding their role in the classroom. Community of practice (CoP) was one of the most significant means that teachers resorted to and found comfort in (Luguetti et al., 2018). The shift took place in how their role in the classroom was to motivate their students to participate actively in class, and the challenge lies in how those conflicts with their previous role of being the lecturer and/or the discipliner in the classroom. In other words, the shift has also contributed to a transformation in professional identity development, as educators reflect on their culture, beliefs, and professional background as well as ways to strike a balance in between (ibis). In Keiler’s (2018) research, he revealed the changes in teachers’ professional identity as the paradigm shift of students-centred classrooms has further developed— learning and innovation skills for the 21st century. Under the new curricular changes, the emphasis is now placed on the development of students’ communication, collaboration, inquiry, problem solving and flexibility. In a STEM classroom, teachers are expected to employ students-centred pedagogies, namely a constructivist and inquiry-based approach (Keiler, 2018). There, however, remains the huge difference between traditional teachers and ‘constructivist teachers’; the former tends to dominate the classroom by providing direct instructions that stress on the conveyance of content knowledge; while the latter categorise themselves as catalysts in the classrooms, whose major duty is to bring out the curiosity and motivation in students and respond accordingly.

The construct of identity is essential in teachers’ professional development, as it contributes to how teachers view themselves, their values, and it is core to their priorities and ultimately, how teaching practice is performed in the classroom (Battey & Franke, 2008). Owing to the changes in the curriculum, students-centred classrooms, and in particular the development of STEM classes have forced educators to transform their previous training and mentality regarding the role of a good teacher, at the same time, holding up values that are still aligned with their personal beliefs and developing identities that could help reestablish classroom norms (ibis). In Dole’s et.al. (2016) study, it reveals that when adapting students-centred pedagogies such as a problem-based learning classroom and/or a project-based learning classroom, teachers had a hard time in learning how to let go of control and to stay as facilitators in the classroom, but the participants in the study also expressed that transformations were subsequently found in shifted classroom structure, improved classroom climate, and changed instructional methods and teaching goals. The role of teachers to students in the classroom has shifted from a top-down relation to a facilitator and/or an assistant to students, despite how it has been ongoing in the past two decades, it is noteworthy that many teachers are still experiencing the transition, although preservice teachers might have had an easier time in the process since the received professional training has also been altered. However, there is no doubt that teachers’ professional identities are essential in how they teach and interact with their students, and it is

an ever-changing and on-going process that involves negotiation between their personal beliefs and their professional self.

2.4. Teachers' Professional Identity, Digitalised Education and Effects on Teaching Practice

Identity concerns the construction of self; professional identity is broadly defined as a set of understandings and notions regarding how educators consider themselves (Zhao, 2022). As a matter of fact, Dwyer et al., (1991) also pointed out that instructional change could only proceed with a corresponding change in beliefs about instruction and learning that occurs within schoolteachers themselves. In other words, teachers must experience fundamental changes in their mentality and reconstruction regarding their existing teaching practices and beliefs to allow changes to occur in their teaching practices (Wang, 2002). In the past two decades, the transition from teacher-centred classroom to students-centred classroom has been a challenge to many in-service teachers, as it involved transitions that required innovative approaches and styles as well as a change of their roles in the classroom. In addition to that, the shift to a technology-rich classroom has also led to many challenges to teachers as it requires technological literacy and appropriate pedagogies that utilise computers as effective tools in their teaching. Wang's (2002) study has revealed the teachers' epistemological and pedagogical orientations, and their perceptions of the teachers' role in the classroom with and without computers did not show a significant difference, implying teachers' reluctance for change in terms of utilising technology and computers in the classroom. Keengwe & Onchwari's (2011) study, on the other hand, reveals that issues of accountability and high-stake exams in the educational system in the States have put teachers in the struggle of implementing students-centred pedagogies; and yet the utilisation of computers and technology have been used as an empowering tool in training students with higher order thinking skills and learning skills. The reason behind it is that teachers have equated innovation with the use of technology and tend to construct more creative pedagogies during the knowledge-building processes when designing instructional practices in the classroom. In Anthony & Noel's (2021) research, it explores the disruptive impact that covid-19 and ERT have on education itself. Virtual education has improved teachers' digital-technological literacy and pedagogy, resulting in a positive impact on their professional identity. However, during the early stages of ERT, many teachers initially lacked the training and skills required to facilitate quality online classes, which led to a state of anxiety and frustration amongst them.

Teacher-student relationships have also been challenged during ERT and virtual teaching; although some teachers managed to carry out online classes and deliver them with quality, while creating a less formal and a much closer bonding with their students as compared to traditional classroom settings; other teachers struggled to support their students' learning and their socio-emotional needs, causing students to become unmotivated in class and completely detached from others in school (Anthony & Noel, 2021; De Gioannis et al., 2023). According to Sadiç & Bavlı's (2023) study, they revealed that innovative teaching experiences during ERT was both positive and negative, in a sense that it made teachers realise that it was necessary for them to rethink the teaching process, instead of relaying information, they should take on the role of inspiring their students and motivating them using enquiry-based pedagogies. On the other hand, ERT has also led to many doubts that occur within teachers, as their motivation to teach and to employ innovative pedagogies and utilise technology also depend highly on students' motivation to learn, which was interpreted by their responses in class, such as whether their cameras were on, etc. The challenge lies on the fact that motivation is a contagious factor between teachers and students, and it is essential for both parties to enable quality virtual teaching and learning. The lack of motivation in either party results in self-doubt

amongst teachers and being even more uncertain about their roles in the classroom and/or whether they are even necessary in a virtual class (Singh, 2016; Sixto-García & Duarte-Melo, 2020; Sadiç & Bavlı, 2023).

Additionally, since ERT, and advances and reliance on technology in education have accelerated, information and knowledge has become temporary and easily accessible, thereby causing content knowledge in a class to have shifted from the major duty of schoolteachers to one that might have been put in challenge by easy access to the Internet and the emergence of artificial intelligence (Fitria & Suminah, 2020). The virtual place of learning has led to changes in the significance of schooling itself, schools are no longer the only place and source of learning; teachers are no longer considered as the only experts and students' dependence on teachers has been heavily reduced since cyberspace has enabled other forms of learning. Owing to such changes, the role of teacher now focuses on construction and discovery through enquiry, interaction and collaboration has become key in the classroom to distinguish the necessity of schooling and schoolteachers from virtual learning spaces that are readily available and accessible. Petersen & Batchelor (2019) argued in their research that teaching is too complex to be simply replaced by artificial intelligence; in particular, the concept of teacher mindfulness— a reflexive approach in teaching, was raised as a strong base for the argument that AI will only be enough as an assistance in the classroom, as they are believed to lack the ability in nurturing students with creative thinking abilities, social-emotional skills; which are believed to be crucial to humanity as human reasoning is often embedded with emotional factors. Benade (2020) and Maksimović & Dimić (2016), on the other hand, postulated that open school design should be the future of education as it encourages flexibility in learning and teaching, with a focus on collaboration, team teaching and designed content that make use of a technology-enriched classroom and yield educational benefits that are required in this digital era. Teaching practices will likely undergo changes under the effects of AI, but since 21st century learning reflects fluidity, unpredictability and complexity, teachers are encouraged to integrate AI and virtual learning space as the 'third teacher', thereby not making their role in the classroom obsolete.

3. Methodology

This research is qualitative based, it makes use of focus group study. Through analysing the dialogue amongst five schoolteachers who teach in five different schools in Hong Kong, Singapore and Taiwan, the research seeks to explore how schoolteachers themselves view teaching, and whether it might be replaced by artificial intelligence. Focus group method produces high quality data when employed with the procedures, as it gives space for informants to interact, converse and exchange ideas surrounding the same subject (Creswell, 1998). In this research, focus group interview is employed as it relies on the conversation flow and ebbs between the teacher informants to enable a relaxed, opened-up and in-depth discussion regarding their perceptions on professional identities since ERT and the emergence of artificial intelligence after the pandemic.

The analysis of the focus group interview was conducted based on thematic analysis; the common and/or frequently appeared words and language patterns spoken and used by participants were categorised as themes/ perspectives (Creswell, 1998). The interview was conducted in English, but occasionally it is mixed with Cantonese and Chinese, depending on the native language spoken by the informant. Due to limited resources and the fact that this is only preliminary research of the topic, only one focus group was used as data in the research. However, each interviewee has also been interviewed separately and individually, contributing to the date of three other in-depth interviews. These interviews were conducted after the focus

group interview was done, to provide a chance for informants to further elaborate on their ideas and perceptions. It also allows me as an ethnographer to be surer about the identified themes from the focus group interview.

Five informants are selected in the study; they are schoolteachers from three different primary and secondary schools located in Hong Kong, Singapore and Taiwan. Table 1 has been created to illustrate the demographic background about these informants.

Table 1.

Demographic background about the five informants

Informant (Pseudonym)	School, teaching subject & teaching experience	Former online teaching experience
Mr. Jack	Local primary school in Hong Kong; Mathematics, 8 years	1 year of training during practicum
Mr. Tan	International primary school in Singapore; Science, 4 years	Constant reliance on flipped classroom and digital learning materials
Ms. Alicia	Local secondary school in Taipei; English, 9 years	None
Mr. John	Private secondary school in Hong Kong; Economics, 5 years	Constant reliance on digital learning materials & e-classroom
Ms. Wong	Local secondary school in Hong Kong; Chinese; 11 years	None

During the focus group interview, although it was a casual, semi-structured interview, some guided questions were drafted, and the interview was conducted based on them. The interview guide asks the following questions:

1. What was your experience like when ERT was implemented during covid-19 pandemic?
2. How did the experience change you as a teacher?
3. What have you noticed as the biggest difference, or the most concerning characteristic about your students after the pandemic?
4. Did you rely on digital tools more frequently after the pandemic? Do you use ChatGPT in class & why/ why not?
5. Do you think teachers will become obsolete in the era of artificial intelligence? Why/ why not?

The interview was recorded by audio and was transcribed afterwards, and the transcripts are translated to English, back translation was also used in specific terms and sentences that involve colloquial to ensure accuracy of the language. Table 1 shows the characteristics of these teaching informants. The five informants were carefully selected, and they can be grouped in different ways based on their characteristics. They were chosen based on snowball sampling and are referrals from former informants that I have once worked with. Regarding these five informants, two of them teach in primary schools and the other three are in secondary schools; two of them teach in private and international schools while the others are in local schools; two of them have no former knowledge about online teaching before the pandemic and the others have relevant training and/or experience; three of them are teachers in Hong Kong and the others are in Taipei and Singapore. Despite these similarities and differences, their discussion was very smooth, and they were very engaged throughout the process. Their views also share some similarities, showing that the nature of teaching is somehow communicable amongst teachers despite cultural and educational contexts.

4. Data Analysis

The transcripts are analysed using thematic and narrative analysis. They have been re-read and reviewed repeatedly throughout the analysis; table 2 has been created to illustrate the recurring themes identified in each question during the focus group discussion. The five questions are designed based on the research question that explores how schoolteachers themselves view and criticise the teaching profession, and their view on its replaceability in the artificial intelligence era.

Table 2.

Thematic analysis: Recurring themes and relevant quotes from informants

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
1	Confused; anxious; lack of relevant pedagogies; not having the right software and equipment	Remote teaching anxiety	‘Honestly, teaching itself has always been like this, I think we all know, it’s like crossing a river blindly while trying to navigate with both your hands in the water for the stones...’ ‘I have always relied on e-classroom, but this is different, everything is shifted and moved online, it’s become very hard to know if my students have fully grasped the content knowledge, I can’t even be sure that they have been 100% with me in the Zoom classroom...’ ‘It was quite terrible for me as well; I have only done one year of relevant training when I was a student-teacher. I don’t have the skills, the software not the right equipment to teach Mathematics online... The show must go on somehow, but I don’t even know if my students are benefiting from the class...’
2	Let go of control; communicate directly with students; not the same teacher as before; using digital tools as assistance in class	Transformative experience	‘I am not the same teacher as before. I think it [the experience] taught me to become more communicative with my students. My students have always been quite good at academics, but as their teacher I can’t take all the credits. This time I have experienced it strongly, as they rely a lot on crash courses available online. What can you do though, except to convince yourself that they are just being self-motivated...’ ‘I see what you mean, it’s absolutely a process of letting go... I would say for me it’s a change in how I bond with my students. Basically, I gave them my WhatsApp number, and opened a group chat with them. I think it helped as it is more direct, and they do send me private messages to ask questions about the content of the class from time to time. I also use it to chase after their homework and assignments, etc. I now feel closer to them, and perhaps this kind of supportive relationship is what I would go for in the future as well. Perhaps not necessarily in a WhatsApp group, but I will find some ways...’ ‘I have been a teacher for 11 years, I have never for once used any digital tools. ERT has certainly challenged me in many ways, but it also gave me different skill sets in teaching. I realise how much more engaged my students are in history when I use Anime and videos in class. I also rely on crossword puzzles and online pop quizzes to test how

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
			attentive they have been in class and how much they have understood. I have continued to use these tools even after the pandemic, and I think it is really bringing some positive effects in my class.'
3	Degradation in social skills; underdeveloped life skills; sense of detachment; widened learning gap; learning loss	Widened learning gap, & poorer socio-emotional development	'First day of school after the pandemic, I remember seeing a form 1 boy in our uniform, standing next to the bus stop and not knowing how to hail it... The bus driver was kind enough to stop still, then I observed him, he didn't even put on his uniform properly, his tie was a terrible mess, and I think we are talking about basic life skills here...' 'Our school has always been very selective with students, in general I would say most of them have helpers at home and so we can't observe their difference from the outside, they all look neat and decent. But during the lesson, they basically refuse to interact with one another, the higher form students are much better, but the junior form ones, it's not that they don't want to engage in the lesson, but they just seem so detached even if they are expressing their opinions with their peers.' 'My students are always not too good at English because in Taiwan, you basically don't have to speak it very well. Local students are usually very good in other subjects, I can sense some learning loss though after the pandemic, the higher form students aren't reaching the levels that they should've reached; and my junior form students are just even harder to teach now, because of the huge learning gap in the same class. Basically, not every student's family can afford a private tutor, for those whose parents can't do so, they rely on themselves, and their academic performance is a direct reflection of how well I have taught and how much they have absorbed. I don't blame them, of course, and I think I have tried my best as well, but for sure it would have been much better if I had had some online teaching experience before the pandemic happened. Now I am proactively brainstorming ways to remedy or to reverse the learning loss and to help these students.' 'My students are quite well-off and are usually from resourceful families. They are used to online learning tools since it is also part of our usual syllabus and how our school teaches, flipped classrooms and so on. However, I notice my students lose temper and attention a lot easier than before, and even if I compare them with previous students of the same age, it seems that the pandemic has made my students a lot less patient somehow. They are quick-tempered and aren't very helpful to their peers, it's almost as if they don't really care enough to help each other out; or simply to socialise with one another... Lack of social skills I would even say. I think this might have something to do with the intensive use of the Internet. Some research does suggest that it could desensitise children, especially those aged between 6-13, which is exactly my students' age.'

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
4	Blended learning; cater to students' progress; healthy balance required; accept digital tools as part of teaching	Acceptance of digital tools as a part of education	'To be honest, I didn't really like digital tools, I never rely on them before. The pandemic has caused me some guilt as I see my students' progress was slower than before, I can't help but think it might have been my responsibility as I lack former online teaching experience and so I don't have the best skills for them in this situation. Now I use digital tools like e-classrooms, occasional Zoom tutorial lessons after school, Google classroom for pre-lesson self-learning materials, etc. I think it is the way education is heading to, this is how both me and my students get used to it and become better at making digitalisation a part of teaching and learning. However, I am still reluctant to use ChatGPT, with my junior form students, I fear that they would not be able to write by themselves in fluent English anymore if I let them use it in class and in their assignments. For my senior form students, I think I am open to letting them have a taste of it just for one to two sessions, because when they are in university, perhaps it will be the trend. However, I do not want AI to kill their creativity and stifle their critical thinking skills. It seems that the thinking process is outsourced to an AI, and I am not sure about the idea...' 'I see what you mean, but I think the more you use technology, the more you will see how it is just a tool at the end of the day. In science for example, demonstration videos and online Q & A games really help my students grasp the concepts a lot easier and faster. This can also depend on the subject I suppose, but I think there is no escape, digitalisation and artificial intelligence is the future of education and we are already on the path, like it or not. Better be prepared and understand them well. ChatGPT is useful in essay writing, but it does contain lots of mistakes too at this stage, like the references and book titles, as well as the logic in between arguments, it is not always perfect. I once caught a student use it in her science report. Instead of yelling at her, I asked her to show me how she has commanded ChatGPT to do it, I guess it's a way for me to better understand these tools as well. At the same time, I found out that she misunderstood some jargon in the experiment, and the experience also made her realise the flaws that ChatGPT still contains. I always tell my students that they first need to be able to outsmart the AI, or at least understand what it is doing, and a unidirectional reliance will only make them suffer in the end. I think it's the same for us teachers too.' 'I have always used digital teaching tools; in Economics it really helps with graphics and computational programmes to demonstrate certain concepts. I do rely on it even more after the pandemic because the materials have already been digitised and were used during the pandemic, to not waste my efforts, and to ensure consistency in my teaching, at least for the same class, and/or the topics that I find particularly helpful with digital tools, I basically blended in

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
			digital tools as part of my teaching. As for ChatGPT, I personally use it when generating topics for quizzes and exams, assignments, and for designing games and rubrics that are related to Economics when helping my higher form students revise for their IB exams. I use ChatGPT anti-tracking software to trace if my students have done the assignments and essays by themselves, because I need to make sure that they do understand those key concepts. Other than that, I basically don't forbid them to use it, although I also don't openly encourage them to do so. I think whether I let them, if they use it, it's just a matter of whether I think it is detrimental to the end goal that I have set up for the session. If that is the case, then for sure they will be asked to re-do the assignments. If not, I guess there is no huge harm in using ChatGPT, I agree with Ms. Tan, I do think it is going to be the future of education.' 'As I teach Chinese, I am still not entirely convinced that digital tools will be the only way to teach. For sure it helps with increasing my students' interests in general, especially like history and some grammatical concepts. However, I prefer reading with a book and writing things with a pen. There is also numerous research that points out the benefits of the traditional ways as compared to the harmful effects that digitalisation has to the cognitive development of the brain. I find it a shame that digitalisation is overwhelming education. I can't speak for every subject, but for language subjects, at least for Chinese, I still insist that the old way is way better. As for ChatGPT, I think it is a type of slow poison that kills my students' reading and writing ability, even their research abilities. I wish for there to be a balance between digitisation and the traditional teaching and learning; it is perhaps true that technology is becoming a part of education, but it doesn't mean we should play a part in accelerating the process or forcing it in our teaching even when it is not most suited.'
5	Teachers are not just knowledge imparters; teachers are like the third parent; for certain subjects only; difficult to replace teachers as a whole	Teachers' refined roles in the classroom	'I don't see how AI can entirely replace teachers. I would say, for Mathematics at least, for sure AI might be faster and more accurate at calculations, however teaching is not about how good you are at the subject, it is about how good you teach, how observant you are to your students' learning needs and how knowledgeable you are in terms of pedagogies and teaching strategies, so as to channel those concepts to your students. Most of the time, students themselves don't have the ability to explain to you that they don't understand, but in their work, as an experienced teacher, it is something that you should be able to spot and then respond correspondingly. Basically, teaching is a complicated process, and it is way much more than imparting knowledge.' 'My subject is all about applications of concepts and how they are used in the analysis of different cases. Economics in general is a subject that requires lots of critical thinking

Qu esti ons	Keywords	Recurring Theme(s)	Relevant quotes from informants
			and awareness based on facts and theories, especially in the formulation of arguments, it must follow certain frameworks. I would not say that AI will replace us, but then perhaps the use of AI as assistant teachers is likely to be the case. Economics is all about conceptual frameworks and with AI, the visualisation will make those concepts a lot less abstract and easier to grasp. However, it relies heavily on teachers' teaching experience and familiarity of his students to spot and identify which concepts to further elaborate on. Teaching is about effectively communicating certain knowledge to students, and I don't see how AI will make teachers obsolete in this case.' 'I must admit that during the pandemic, I had a phase in which I felt like my role was completely redundant. When I was teaching on Zoom, not all my students turned on their cameras, it felt so much like I was talking to myself and having zero idea nor feedback regarding whether those content knowledge was passed to my students at all. Knowing how easy it is to go online and just rely on crash courses and other online materials, I was convinced that teachers were completely replaceable. Until one day when I started having private chats with my students during break times, they were sharing with me their anxieties about the pandemic, the health of their families and themselves; one student even asked me if I thought it was the end of the world... During these kinds of discussions, they were emotionally charged and very authentic. That moment hit me hard. I realise teachers are like their third parent, a guardian, a very important one indeed, that helps them find the path and the courage to hold on and to overcome any mental blockages or challenges. Teaching is not just about the knowledge itself, it is important for sure, but then the relationship between teachers and students is what's going to affect my students most. I recall my experience when I was a student, I really don't remember much about what has been taught, but the memories and conversations that I had with my teachers, things that they said which have encouraged me or in some cases, insulted and discouraged me, are the memories that lasted. I think it will always be the case, no matter how advanced technology is.'

The focus group interview lasted for about 65 minutes in total, it was conducted online, and these informants did not know each other in person before the discussion. They were introduced very briefly before the start of the discussion so that they have a general idea about the context that the individual's opinions and comments are based. Since these five informants are all from different subject backgrounds, it allows a more general discussion and a wider range of expression regarding the discussion questions. Table 2 shows some of the significant quotes during the focus group discussion, and they correspond to some recurring keywords, which then allowed me to identify some main themes based on the discussion framework under each research question on the interview guide.

In each research question, one big theme was identified, it is a recurring theme that centres around the discussion in the focus group, it is the most significant theme and one that protrudes.

For the first question: 1. What was your experience like when ERT was implemented during covid-19 pandemic? The identified theme was remote teaching anxiety; some keywords were repeatedly used in the elaboration of each informant during the discussion. The second question: How did the experience change you as a teacher? The singled-out theme was 'transformative experience', as most of the informants expressed how the pandemic changed their views and perceptions regarding using digital teaching tools in the lesson. The third research question: What have you noticed as the biggest difference, or the most concerning characteristic about your students after the pandemic? There are two equally important and related themes, which were 'widened learning gap & poorer socio-emotional development'. Informants have mutually pointed out that their students seem to be more detached and much less sociable in class. They also discussed how the learning gap has been widened, as each student has different degrees of access to resources and that implies learning loss for some, thereby causing a wider learning gap in the class. The fourth question was: Did you rely on digital tools more frequently after the pandemic? Do you use ChatGPT in class & why/ why not? Most teachers are more open about incorporating digital tools in their teaching; however, some are quite reluctant towards the use of ChatGPT, and several have expressed similar concerns in how artificial intelligence might stifle students' creativity and critical thinking skills. The identified theme was 'acceptance of digital tools as a part of education'. It is also connected to the third research question and is indeed a part of transformative learning. The fifth question was: Do you think teachers will become obsolete in the era of artificial intelligence? Why/ why not? The identified theme is 'teachers' refined roles in the classroom. Most informants disagree that teachers might become reluctant and obsolete under the increased use of artificial intelligence in the classroom. Although they all agree that it is an inevitable trend that modern education is heading to, the discussion shows that the existence of artificial intelligence has simply made them realise their refined role as teachers in the classroom. Aspects such as emotional support, emotional bonding and connecting and providing guidance to students are some of the important aspects and duties that these informants believe a good teacher should be able to carry out. These are also the traits and characteristics that artificial intelligence might not be able to replace humans entirely yet, since it lacks the ability to understand the emotions of humans at this stage.

5. Discussion

5.1. Remote Teaching Anxiety

In general, the informants exhibited remote teaching anxiety, it is noteworthy that the term itself was not at all mentioned throughout the discussion, however, the keywords which recurred during the discussion were emotionally charged. These emotions were related to anxieties, and confusion. Not all these informants had former online teaching experience; as a matter of fact, only two informants: Mr. Tan and Mr. John is used to online teaching and using digital teaching tools before the implementation of emergency remote teaching. One interesting common characteristic between these informants was that they were both teaching at middle class to upper class schools, one was an international school in Singapore, and another was a private school in Hong Kong; perhaps this also signifies the difference between the reliance of public and private education in these two jurisdictions. As for the other informants, they had very limited to no former online teaching experience at all. ERT was 'the biggest disruption' that they have faced in their teaching life by far, even though they tried to rationalise it by comparing it to the other challenges faced in teaching itself– 'just as how it's like crossing the river by waddling through the water with both hands'.

Another aspect is that these informants, despite their online teaching experiences, all expressed concerns regarding their students' progress and whether they have grasped the messages and the teaching materials in the lesson. For instance, Mr. Jack specifically mentioned that when students do not turn on their cameras, it made him feel 'particularly anxious' because of the lack of 'body language' and hence causing him 'a lack of sense or any hint at all regarding whether the student is fully present in the lesson'. This is completely different from the usual pedagogy and classroom management skill that Mr Jack employs; at the same time, owing to a lack of extra support and training courses regarding ERT pedagogies and/or online teaching pedagogies, informants who shared similar concerns also expressed the anxiety of accountability issue. These teaching informants feel responsible for the 'continuation of education' but are also suffering from lots of stress and anxieties at the same time since they did not feel like they 'are qualified enough' to teach online, as they feel 'they lack the skills to transfer their pedagogies and teaching skills online'.

5.2. Transformative Experience

All in all, the ERT experience is transformative to these informants, as their view and perception towards online teaching has completely changed afterwards. Mezirow (1978)'s transformative theory postulated the process of transformative learning to begin from critical self-reflection after the occurrence of disorientation. The disorientation in this case would be the pandemic and the urgency to employ ERT; it brought lots of critical self-reflection in these informants. These informants were very doubtful of their teaching roles when the pandemic began. In an online classroom, the teaching space has been completely shifted to a virtual one, these teachers have experienced the loss of control and power in the class, while some discussed their strong sense of self-doubts, since they could no longer be certain about their students' learning through observing their body language. The disability of in-person teaching has also disabled these teaching individuals' confidence and sense of assurance in class. Some of them 'did not feel competent enough' in teaching their students through online tools and means; as for the other two informants who are used to online medium, they also expressed 'concerns about the intensive use of the Internet and online medium' because 'it is simply not the same as blended learning, but everything is completely online'. More importantly, some informants even expressed how the intense self-doubts have led them to think that teachers might just be some sort of entertainers, and their students did not necessarily need them in the classroom anyway, since knowledge and learning resources are widely accessible online. An interesting turn occurred as these individuals continue with the online teaching environment, and gradually bonded with their students through social media. MR. John mentioned that the WhatsApp group has allowed him to be closer with his students, and it also provided him a way to show genuine care to them. His students' trust and connection with him deepened as time passed by. In fact, both Mr. John and Ms. Alicia have been asked by their students 'if the pandemic means the end of the world' and 'if the world is ending, what is the point of learning'. Similar conversations have occurred between the other informants and their students, and these informants have been inspired and experienced even deeper self-reflection owing to these cosmological questions. The conversations led them to think about the fundamentals of education per se. To illustrate, Ms. Wong and Ms. Alicia both discussed how they have reflected deeply about 'what makes a great teacher'. It is these kinds of critical reflection, that have led them to the transformative learning experience.

The theme of transformative experience is identified in the discussion as these informants have all mentioned how the experience changed them as a teacher on multiple aspects, for instance, their relationship with students in terms of communication and trust. For instance, Ms. Wong, who has been teaching for 11 years and has no former online teaching experience at all, has

expressed that ‘she felt like a different teacher as ERT has equipped her with new skills sets in teaching’. Transformative learning requires the next step of reintegration the individual should have changed the habits of mind and reintegrated the new knowledge into the future. Ms. Wong has expressed that she ‘has used digital tools more often in class even after the pandemic’, because she realises that crossword puzzles and digital pop quizzes and animated short clips have really caught her students’ attention and raise their interests especially when she teaches topics that are usually quite boring for them. In addition to that, Ms. Alicia, who’s a local secondary school teacher in Taiwan, despite her 9 years of teaching experience, she has never conducted online teaching before ERT. Ms. Alicia expressed in the interview that she ‘is not the same teacher as before’, on a sense that she has acquires new ways of ‘communicating with her students’, she mentioned that her students rely a lot on crash courses and other accessible materials online, however, instead of doubting them and distrusting them, or even accusing those students for learning ahead of her teaching, and/or cheating in an assignment, she has decided to ‘let go of control’ and the idea of ‘having to ensure that students have only learnt the knowledge from school teachers’; she even pointed out that perhaps the former mentality is a way to ‘establish the top-down relationship with students, so as to ensure the respect from students will always remain’.

On one hand, there is indeed not sufficient evidence to conclude whether students’ respect for teachers are solely built upon that, from her experience and the stories that she mentioned during the interview, it seems that her students still respect her as a teacher, and more to that, as a friend and someone trustworthy even, the moment she has decided to trust her students in making use of online resources by themselves and motivated them by posting challenging questions, which has ultimately made her students even more self-motivated in her lessons. As a matter of fact, even for Mr. John, who has always been relying on digital teaching tools, also mentioned that ERT has been ‘a process of letting go’ and it has ‘changed how he bonds with his students’. Mr. John has created a Whatsapp group using his private number and has stayed in touch with his students through social media. This is very different from how he usually connects with his students, but it has also ‘brought him closer to them’ as it is ‘a direct way’ to communicate with the students, as well as to monitor their learning process. Mr John also mentioned that some students feel too shy to ask questions in an in-person setting and are even too shy to do so in an online learning environment, yet these students can ask him freely regarding their academic confusions. This has ‘increased the trust between students and the teacher’ and has in a way ‘helped students become more motivated and to have more self-efficacy’ in learning.

5.3. Widened Learning Gap and Poorer Socio-Emotional Development

When asked about the biggest difference and/or concern that these teachers have observed in their students, from their responses, the identified theme was widened learning gap and poorer socio-emotional development. As a matter of fact, there is also research which has shown the detrimental effects that ERT has brought to students in general, these include poorer cognitive development, empathy development, and socio-emotional abilities (Kuhfeld et al., 2023). Regarding the informants, Ms. Wong, who teaches in a local secondary school in Hong Kong, has shared a story about a form one boy, which is equivalent to a 13-year-old, who did not have the knowledge regarding hailing a bus and signalling the bus driver to stop. In addition to that, she specifically mentioned how his uniform was not properly put on, and that his tie ‘was a complete mess’. These are exemplifying that Ms. Wong has used to illustrate the degradation in life skills and general social skills that previous students of the same age that Ms. Wong once taught had. This was concerning because Ms. Wong has been an experienced teacher and is familiar with the kind of behaviours that students of a certain age should be capable of. What

she described in the interview is an indicator that there has been some delay in students' cognitive and socio-emotional development in general.

As a matter of fact, this has been agreed with other informants as well, and the fact that they all nodded with agreement during the focus group discussion shows that it has been an observable trend not just in Hong Kong, but also concerns Taiwan and Singapore. Mr. John, who teaches in a private secondary school in Hong Kong, pointed out that even if students from that school in general come from families with higher socio-economic statuses, it only has an impact on their looks and in maintaining decency when it comes to their uniforms. However, Mr. John highlighted these students' refusal in engaging in discussion and interacting with their peers during the lesson. He particularly took note of the difference he has observed between junior and senior form students, and postulated that perhaps the junior form students are too young to have been exposed to intensive online learning and a complete isolated learning atmosphere; whereas the senior form students have relatively more stable and matured learning modes and familiarity about expected behaviours in class, and so the pandemic might have had less effects on them. In addition to that, he specifically used the term 'detachment' when describing his junior form students in terms of how they interact and socialise with their peers. This is also consistent with Kuhfeld et al. (2023)'s research, which revealed that the pandemic has also caused students to become less socially and emotionally available and attached to their peers and to events of the world in general. In terms of social-emotional development, Mr. Tan has also added in the discussion after Mr. John's sharing and mentioned that his students have become more quick-tempered and a lot less patient and empathetic after ERT; in which he also described as 'intensive online learning', which he also suspects might have 'caused emotional developmental damage and/or socialising abilities'.

As for the widened learning gap in class, this has been a concern brought up by all informants in the discussion. They have mentioned that students who have always been above average are now either more superior than before, or they managed to stay above average; whereas those who have been performing sub-par have gotten even worse in terms of knowledge acquisition, academic achievements and learning motivation in class. The term 'learning losses' has been used by Ms. Alicia, when describing her senior form students, whose families cannot afford private tutorial lessons for them. For these students, they have not been able to perform what students should have been able to in a normal setting. First, this is correlated to unequal resource distribution owing to one's SES; second, Ms. Alicia also specifically mentioned that the learning outcome and performance of students without extra help is simply a reflection of how well they have been learning, which she equates that to how well she has been teaching. Other informants also agreed with her, when she mentioned 'remedies must be done to reverse the learning loss in some students', and some informants also added that the socio-cognitive and social-emotional development of students should also be taken care of. This part of the focus group interview reveals that perhaps the lockdown and suspension of school have impaired students' socialisation abilities; at the same time, it also reveals how it is a problem and/or phenomenon that is observable and occurring across Taiwan, Singapore, and Hong Kong.

5.4. Acceptance of Digital Tools as a Part of Education

Before the pandemic, some teachers were reluctant to utilise digital teaching tools in class; the interview question in this section concerns teachers' views and perception regarding digital teaching and learning tools, and they were also asked to comment on ChatGPT. The appearance of ChatGPT went viral within a short period of time, and it has affected education in several ways (AbuMusab, 2023). Ms. Alicia, who has never 'relied on digital tools before', has

discussed how the pandemic made her realise the importance of online teaching, and she even expressed a sense of guilt owing to the worry that her lack of former online teaching experience has been the cause for the jeopardization of her students' learning. On top of that, she is a lot more open to the usage of digital tools in class now, and even considers that a way to practise and to prepare her students for the future. It is noteworthy that all informants agreed in the interview that digitalisation is the way of education and where it is heading. As for ChatGPT, Ms. Wong fears that her junior form students' writing, and critical thinking skills might be negatively affected if it is used more frequently. For her senior form students, she has used them in several sections as she believes it is her responsibility to prepare her students for university, and that she sees ChatGPT as the leading trend when her students graduate from high school.

On the other hand, other informants might have completely different views regarding ChatGPT; as a matter of fact, it seems that the more the informants are used to digital teaching tools, the less reluctant and the more accepting s/he is towards the use of digital tools and even ChatGPT. Mr. Tan, for instance, who is a science teacher at an international primary school in Singapore, has always relied on digital tools, flipped classrooms and blended learning in his teaching. He gave an example in which ChatGPT was used by one of his students in the science report, and instead of disciplining that student, he chose to communicate and find out how the work was generated. He described it as 'an inevitable process in this digital era' and that 'it is always better to know more about the tools, to be familiar with the pros and cons, before deciding whether or not to use it, and more importantly, how exactly to use it'. Mr. Tan's view is shared by Mr. John, who teaches Economics in a private secondary school in Hong Kong. Similar to Mr. Tan, Mr. John is also used to digital teaching and learning materials as well as the e-classroom. He specifically mentioned one more reason to use them more frequently after the pandemic, which is that the materials have been specially 'updated, prepared and digitised during the pandemic, and it only makes sense to use them more often, so the efforts do not go to waste; and second, so that students' learning is slightly more consistent'. Mr. John also shares the same view regarding ChatGPT and pointed out that 'as teachers, it is not a matter of whether or not you allow it in class, it's more about whether or not you can identify its application when your students rely on them'. He also uses ChatGPT himself in generating exam papers and rubrics for class activities he explained that 'it saves him a lot of time as compared to having to do everything from scratch'. His attitude towards ChatGPT is positive in general, he sees that as part of the digitisation of education. However, he also uses anti-ChatGPT and AI-tracking app to trace whether his students have made use of ChatGPT in assignments 'that should be used as chances to practise their critical thinking skills and application of the theories in Economics' because 'the public exam is still what matters most, and that ChatGPT is not going to be helpful during it'.

Additionally, another interesting finding is that these informants in general, agree there is a difference in which digital teaching tools and ChatGPT could be applied based on the subject that they teach. For instance, Ms. Wong and Ms. Alicia both pointed out that language subjects rely on students' frequent reading and writing practices to increase their knowledge and to ensure higher grammatical accuracy in a linguistic sense. Both did not rely on digital teaching tools before the pandemic, and both have expressed concerns regarding how digital tools could jeopardise students' reading and writing abilities. As a matter of fact, this has also been revealed as a negative effect of distance learning and online education in some research (Trentin, 2016; Benade, 2020; Moore et al., 2023). They also expressed concerns about the usage of ChatGPT and how it might possibly 'kill students' writing and even research abilities' as it has the function to generate an essay, thereby taking away the opportunity for students to practise their writing using the language. Ms. Wong has made a remark towards the end of the

interview that it is important for there to be a balance between digitisation and education itself; indicating the view that digitalisation is the inevitable trend of education, but it is a path rather than an end goal, and by striking a balance in between, it allows the maintenance of high-quality education and benefits to students' learning.

5.5. Teachers' Refined Role in the Classroom

The discussion on this section was indeed the most intriguing as my informants have spent relatively longer time in expressing their opinions on this. In general, all of them do not think that teachers will become obsolete the era of artificial intelligence, the reasons varied but on a broad level, they can be categorised using the same theme— teachers' roles have become more refined, not only that they are not merely knowledge imparters, but they have also bonded more closely with their students, taking up the role as a third parent and even to act as their moral compass. Mr. Jack, who teaches primary school students in Hong Kong, has pointed out the advantages and edge that artificial intelligence has over schoolteachers and/or the human brain. It is undeniable that AI can 'perform faster and more accurately at calculations', however, it does not mean that AI are automatically good teachers. He specifically mentioned several criteria to be a good Mathematics teacher, namely 'to be aware of students' issues and misconceptions' because 'students often lack the ability to explain what they do not understand' and it is therefore 'a good teacher's responsibility to identify those specific needs and act upon them using corresponding pedagogies and teaching methods. Mr. John shares a similar view in this regard, as both Economics and Mathematics do share some similar qualities in terms of theories and how the two subjects' function, Mr. John pointed out the benefits of utilising AI in his case in illustrating abstract concepts to his students. In both informants' explanation and elaboration, the role of AI is still an assistant to a schoolteacher in the classroom, but do not have the communication strategies and pedagogies that are enough to make teachers redundant.

In addition, it is true that the role of schoolteachers has been changing and have undergone many changes in the last two decades. From teachers-centred classroom to students-centred classroom; and with the implementation of STEM classes which encouraged an enquiry-based learning atmosphere; and now, the advancement of technology and the reliance of digitalisation and technology in education. In Ms. Wong's sharing regarding her opinion on teachers' role in the digital era, she also discussed her doubts at first when Zoom classes were introduced. The lack of in-person body language, signs and eye contacts have caused her to feel frustrated as there was no feedback from her students. Not only was she concerned about the learning progress of the students, but she was also anxious about teaching itself, as it felt like 'she is just treated as some kind of character talking on a video, some kind of person on TV that they could just mute anytime they feel like it'. At the same time, Ms. Wong mentioned her fear of being replaced even in the aspect of imparting content knowledge, as online learning resources are way too accessible and available. However, in the discussion itself, the most important idea that protrudes was that teaching is a lot more than imparting knowledge. Teaching is about communicating and 'being the moral compass for students, the role model and even acting like a third parent to one's students. All the informants mentioned that their students have approached them during the pandemic and expressed their concerns about public health, and some even asked for their opinion on whether it was the end of the world. These kinds of questions involve these informants' personal views and cosmological perception. They ought to be answered and responded carefully because their responses could be key to how their students perceive the pandemic, and eventually their future and the world. This kind of philosophical discussion which does not only involve logic, reasoning, but also considers

emotions, is exactly what is believed to have made the role of teachers more refined in this digital era.

6. Conclusion

Teaching is more than just a job; the pandemic has made everyone realise and feel this in an in-depth manner. It is true that even when the pandemic is over, digitalisation has not ceased, and it seems that education is also embarking on a journey towards technology and digitisation. Naturally there might be other issues that come along with it, such as virtual structural violence, and/or unequal resource distribution, etc. During the pandemic, when ERT was implemented despite many teachers' incompetence in online teaching, they were 'powerless elites'; however, as the disjuncture took place, and later as they have learnt and, in some cases, mastered the use of digital tools in their teaching, transformative learning is achieved, they have proceeded with the future with a much more different mindset that is open to the use of technology. The appearance of ChatGPT has also caused some disruption to education itself--- different research has revealed concerns about the desensitisation that overreliance of technology and artificial intelligence have on students' cognitive, socio-emotional, and empathetic development. This research puts emphasis on the emotional experiences of five teachers in three countries. The findings suggest these individuals have experienced transformative learning, making them harder to be replaced entirely by artificial intelligence.

Emotions and emotionality in the classroom should not be overlooked, this research provides a precious perspective coming from current teachers. With the recent development of artificial intelligence, emotionality has become more important in distinguishing humans from artificial intelligence. The ability to have emotions is entangled in the mind and body of a human, the flow of emotions determines our relationships with other people and the world around us, they are evaluative, and it is exactly because of this characteristic, that emotions are also indispensable to transformative learning. We can control how emotions are handled but we cannot choose not to experience emotions; in the case of these teachers, emotions have been channelled into a positive energy that yields transformation, benefitting both the individuals themselves and their students. In an AI-assisted educational context, it is particularly important for teachers to develop reflexivity and focus on critical self-reflection. The role of teachers in this exciting era is still unfolding, but it is certain that teachers will become either completely obsolete, if the educators are not willing to nurture their reflexive thinking and undergo transformation in their habits of minds; or they will become the key to future generations, who have consolidated self-identities and will therefore, not be so irreplaceable by artificial intelligence, regardless of the field.

This research has explored several important challenges faced by teachers in the digital age, particularly their intense self-doubts during the shift to ERT. Transformative learning is evident in these teaching individuals, owing to their critical self-reflection that led them to ponder what the fundamental of a great teacher is. The research has focused on the emotions experienced by teachers and how such emotions have contributed to changes in these individuals---remote teaching anxiety because of self-evaluated lack of online pedagogies; and eventually the acceptance of digital tools as a part of teaching and education. The aftermath of ERT is also explored in the research, widened learning gap in classes and how the development and learning progress of students are interlinked with their socio-economic backgrounds. Most importantly, this research examined teachers' perceptions of the replaceability of teaching profession, a significant finding is that teachers have a more refined role in the classroom, and it is enabled by transformative learning. Teaching is an art and a process embedded with emotions, it is always changing, and it is a profession that shapes the future pillars of society.

At this stage, there is no telling for certainty regarding whether teachers will be replaced completely in the future. However, as for now, there are certainly things and approaches that we could adopt to ensure the value and preciousness of teachers are reassured, not only will this improve the quality of education across jurisdictions, it is believed that it could also be key to the distinguishment in the difference between artificial intelligence and humans. They can either remain as powerless elites, or they can experience emotions in a theoretical-reflexive manner and continue to create meaning for themselves in their teaching profession.

References

- AbuMusab, S. (2023). Generative AI and human labor: who is replaceable? *AI & SOCIETY*, 1-3. <https://doi.org/10.1007/s00146-023-01773-3>
- Akbana, Y. E., & Dikilitaş, K. (2022). EFL teachers' sources of remote teaching anxiety: Insights and implications for EFL teacher education. *Acta Educationis Generalis*, 12(1), 157-180. <https://doi.org/10.2478/atd-2022-0009>
- Alberoni, F. (2007). The Powerless 'Elite': Theory and Sociological Research on the Phenomenon of the Stars. <https://doi.org/10.4135/9781446269534.n8>
- Anthony, B., & Noel, S. (2021). Examining the adoption of emergency remote teaching and virtual learning during and after COVID-19 pandemic. *International Journal of Educational Management*, 35(6), 1136–1150. <https://doi.org/10.1108/ijem-08-2020-0370>
- Battey, D., & Franke, M. L. (2008). Transforming identities: Understanding teachers across professional development and classroom practice. *Teacher education quarterly*, 35(3), 127-149.
- Beatty, A. & Brunel University. (2014). Anthropology and emotion. *Journal of the Royal Anthropological Institute*, 20, 545–563. <https://doi.org/10.1111/1467-9655.12114>
- Benade, L. (2020). Is the classroom obsolete in the twenty-first century? In *Design, Education and Pedagogy* (pp. 6-17). Routledge. <https://doi.org/10.1201/9781003024781-2>
- Calleja, C. (2014). Jack Mezirow's conceptualisation of adult transformative learning: A review. *Journal of Adult and Continuing Education*, 20(1), 117-136. <https://doi.org/10.7227/JACE.20.1.8>
- Choi, H., Chung, S. Y., & Ko, J. (2021). Rethinking teacher education policy in ICT: Lessons from emergency remote teaching (ERT) during the COVID-19 pandemic period in Korea. *Sustainability*, 13(10), 5480. <https://doi.org/10.3390/su13105480>
- Chiu, Y. Y. (2021). Effectiveness of online learning relies on the dynamic between teachers and students. *Journal of E-learning Research*, 1(4), 61–81. <https://doi.org/10.33422/jelr.v1i4.237>
- Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Sage Publications, Inc.
- De Gioannis, E., Ballarino, G., & Cartagini, D. (2023). Parents and teachers' compensatory strategies during COVID-19 school closures: A scoping review. *International Review of Education*, 69(5), 603-623. <https://doi.org/10.1007/s11159-023-10011-3>

- Dole, S., Bloom, L., & Kowalske, K. (2016). Transforming pedagogy: Changing perspectives from teacher-centered to learner-centered. *Interdisciplinary Journal of Problem-Based Learning*, 10(1), 1. <https://doi.org/10.7771/1541-5015.1538>
- Driscoll, A., Jicha, K., Hunt, A. N., Tichavsky, L., & Thompson, G. (2012). Can online courses deliver in-class results? A comparison of student performance and satisfaction in an online versus a face-to-face introductory sociology course. *Teaching Sociology*, 40(4), 312-331. <https://doi.org/10.1177/0092055X12446624>
- Dwyer, DC, Ringstaff, C and Sandholtz, JH (1991) Changes in teachers' beliefs and practices in technology-rich classrooms, *Educational Leadership*, 45–52.
- Fitria, H., & Suminah, S. (2020). Role of teachers in digital instructional era. *Journal of Social Work and Science Education*, 1(1), 70-77. <https://doi.org/10.52690/jswse.v1i1.11>
- García-Peñalvo, F. J. (2023). The perception of Artificial Intelligence in educational contexts after the launch of ChatGPT: Disruption or Panic?.
- Hubalovsky, S., Hubalovska, M., & Musilek, M. (2019). Assessment of the influence of adaptive E-learning on learning effectiveness of primary school pupils. *Computers in Human Behavior*, 92, 691-705. <https://doi.org/10.1016/j.chb.2018.05.033>
- Illeris, K. (2018). Transformative learning re-defined: As changes in elements of the identity. In *Learning, Development and Education* (pp. 185-197). Routledge. <https://doi.org/10.4324/9781315620565-18>
- Kawalkar, A., & Vijapurkar, J. (2013). Scaffolding Science Talk: The role of teachers' questions in the inquiry classroom. *International Journal of Science Education*, 35(12), 2004-2027. <https://doi.org/10.1080/09500693.2011.604684>
- Kaymakamoglu, S. E. (2018). Teachers' Beliefs, Perceived Practice and Actual Classroom Practice in Relation to Traditional (Teacher-Centered) and Constructivist (Learner-Centered) Teaching (Note 1). *Journal of Education and Learning*, 7(1), 29-37. <https://doi.org/10.5539/jel.v7n1p29>
- Keengwe, J., & Onchwari, G. (2011). Fostering meaningful student learning through constructivist pedagogy and technology integration. *International Journal of Information and Communication Technology Education*, 7(4), 1–10. <https://doi.org/10.4018/jicte.201100101>
- Keiler, L. S. (2018). Teachers' roles and identities in student-centered classrooms. *International journal of STEM education*, 5, 1-20. <https://doi.org/10.1186/s40594-018-0131-6>
- Kitchenham, A. (2008). The evolution of John Mezirow's transformative learning theory. *Journal of transformative education*, 6(2), 104-123. <https://doi.org/10.1177/1541344608322678>
- Lave, J., & Wenger, E. (1991). *Situated learning: legitimate peripheral participation*. New York, NJ: Cambridge University Press. <https://doi.org/10.1017/CBO9780511815355>
- Lugueti, C., Aranda, R., Enriquez, O. N., & Oliver, K. L. (2018). Developing teachers' pedagogical identities through a community of practice: Learning to sustain the use of a

- student-centered inquiry as curriculum approach. *Sport, Education and Society*.
<https://doi.org/10.1080/13573322.2018.1476336>
- Maksimović, J., & Dimić, N. (2016). Digital technology and teachers' competence for its application in the classroom. *Istraživanja u pedagogiji*, 6(2), 59-71.
<https://doi.org/10.17810/2015.35>
- Marsick, V. & Mezirow, J. (2002). New work on transformative learning. *Teachers College Record*, 25 January. <https://doi.org/10.17810/2015.35>
- Megan Kuhfeld, J. S., Lindsay Dworkin, K. L., Emily Markovich Morris, L. N., Erin Castro, M. H., & Darrell M. West, J. B. K. (2023, June 27). *The pandemic has had devastating impacts on learning. what will it take to help students catch up?* Brookings.
<https://www.brookings.edu/articles/the-pandemic-has-had-devastating-impacts-on-learning-what-will-it-take-to-help-students-catch-up>
- Mezirow, J. (1989). Transformation theory and social action: A response to Collard and law. *Adult Education Quarterly*, 39(3), 169-175. <https://doi.org/10.1177/0001848189039003005>
- Moore, S., & Hodges, C. B. (2023). Emergency Remote Teaching. *EdTechnica*.
<https://doi.org/10.59668/371.11681>
- Petersen, N., & Batchelor, J. (2019). Preservice student views of teacher judgement and practice in the age of artificial intelligence. *Southern African Review of Education with Education with Production*, 25(1), 70-88.
- Plumb, D. (2006). The Nature and Archaic Origins of Lifelong Learning Processes: The Relevance of Anthropology to Adult Education. *Adult Education Research Conference*.
<https://newprairiepress.org/aerc/2006/papers/67/>
- Roehrig, G. H., & Kruse, R. A. (2005). The role of teachers' beliefs and knowledge in the adoption of a Reform-Based curriculum. *School science and Mathematics*, 105(8), 412-422.
<https://doi.org/10.1111/j.1949-8594.2005.tb18061.x>
- Ross, A. F., & DiSalvo, M. L. (2020). Negotiating displacement, regaining community: The Harvard Language Center's response to the COVID-19 crisis. *Foreign Language Annals*, 53(2), 371-379. <https://doi.org/10.1111/flan.12463>
- Russell, V. (2020). Language anxiety and the online learner. *Foreign Language Annals*, 53(2), 338-352. <https://doi.org/10.1111/flan.12461>
- Sadiç, T., & Bavlı, B. (2023). Innovative teaching practices during the emergency remote teaching (ERT) process: a phenomenological inquiry. *Journal of Research in Innovative Teaching & Learning*. <https://doi.org/10.1108/JRIT-04-2023-0037>
- Singh, R. (2016). Learner and learning in the digital era: Some issues and challenges. *International Education & Research Journal [IERJ]*, 2(10), 92-94.
- Sixto-García, J., & Duarte-Melo, A. (2020). Self-destructive content in university teaching: new challenge in the Digital Competence of Educators. *Communication & Society*, 33(3), 187-199. <https://doi.org/10.15581/003.33.3.187-199>

- Spindler, G. (2011). Anthropology and Education: An Overview. In *The Anthropology of Education Classic Readings* (pp. 19–40). Cognella.
- Stewart, W. H. (2021). A global crash-course in teaching and learning online: A thematic review of empirical Emergency Remote Teaching (ERT) studies in higher education during Year 1 of COVID-19. *Open praxis*, 13(1), 89-102. <https://doi.org/10.5944/openpraxis.13.1.1177>
- Taguchi, N. (2020). Digitally mediated remote learning of pragmatics. *Foreign Language Annals*, 53(2), 353-358. <https://doi.org/10.1111/flan.12455>
- Taylor, E. (2000). Fostering Mezirow's transformative learning theory in the adult education classroom: A critical review. *Canadian Journal for the Study of Adult Education*, 14(2), 1-28.
- Trentin, G. (2016). Always-on education and hybrid learning spaces. *Educational Technology*, 31-37.
- Wang, Y. M. (2002). From teacher-centredness to student-centredness: Are preservice teachers making the conceptual shift when teaching in information age classrooms? *Educational Media International*, 39(3-4), 257-265. <https://doi.org/10.1080/09523980210166710>
- Wulf, C. (2002). *Anthropology of Education* (Vol. 2). Transaction Publishers. <https://doi.org/10.2139/ssrn.3732081>
- Wulf, C. (2021). Emotion and imagination: Perspectives in educational anthropology. *International Journal of African Studies*, 1(1), 45–53. <https://doi.org/10.51483/ijafsr.1.1.2021.45-53>
- Yung, C. Y. (2022). Emotions as an Accelerator: Case Studies on the Effects of Emotions on Teachers' Perception and Learning when being in Conflicts with School leaders. *European Journal of Teaching and Education*, 4(1), 48–60. <https://doi.org/10.33422/ejte.v4i1.725>
- Zhao, Q. (2022). On the Role of Teachers' Professional Identity and Well-Being in Their Professional Development. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.913708>